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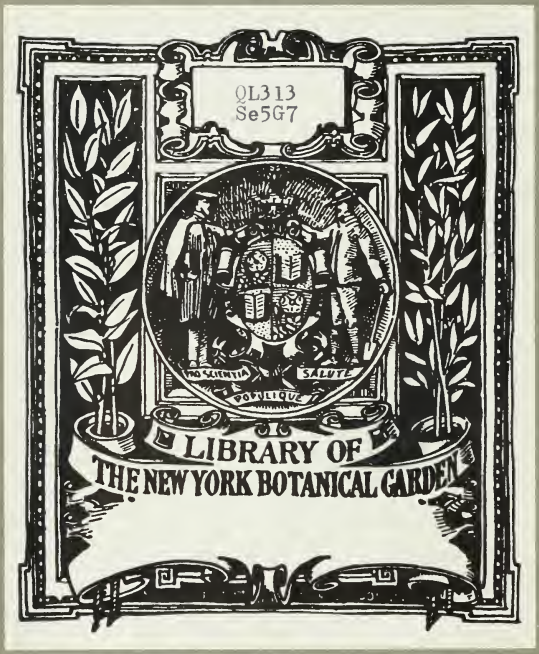
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. NEW SPECIES OF CUBAN SENECIONEÆ.

I. DIAGNOSES OF NEW SPECIES AND NOTES ON OTHER SPERMATOPHYTES, CHIEFLY FROM MEXICO AND CENTRAL AMERICA.

BY

JESSE MORE GREENMAN, PH.D.
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Curator, Department of Botany

CHICAGO, U. S. A.
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I.—NEW SPECIES OF CUBAN SENECIONEÆ.

By J. M. GREENMAN.

Dr. N. L. Britton has kindly submitted to the writer for identification a very unusual assemblage of *Senecioneæ* from Cuba collected by Mr. J. A. Shafer in 1909 and 1910. The results of a study of this remarkable series of specimens are recorded as follows:

Senecio Brittonii Greenman, nom. nov. *Cacalia discolor* Griseb. Cat. Pl. Cuba, 157 (1866), not *Senecio discolor* (Sw.) DC. Prodr. vi. 412 (1837).

Frutex 1–2 m. altus; ramis teretibus dense lanato-tomentosis plus minusve glabratis; foliis alternis petiolatis lanceolatis 4–8 cm. longis 1–1.5 cm. latis obtusis juventate supra arachnoideo-tomentulosis mox glabratis maturitate pallido-viridibus sublucidisque subtus persistenter tomentosis obscure nervatis marginibus integris revolutisque basi sensim angustatis; petiolis 8 mm. vel minus longis; inflorescentiis terminalibus corymbo-cymosis multicapitatis; capitulis discoideis ca. 1 cm. altis calyculatis; involucri squamis 5 lineari-lanceolatis 6–7 mm. longis acutis arachnoideo-tomentulosis; floribus 5, corollis albido-ochroleucis; pappi setis albis corolla brevioribus; achæniis hirtellis.—Along rivulets in "pinales," Mulgajita, Cuba, *C. Wright*, no. 2870 (hb. Gray); in arroyos on a palm barren, Santa Clara, Province of Santa Clara, Cuba, 21, 22 March, 1910, *N. L. Britton & J. F. Cowell*, no. 10180 (hb. Field Museum cat. no. 294752, and hb. N. Y. Bot. Garden).

Senecio carinatus Greenman, sp. nov.

Frutex 1–1.5 m. altus; ramis subancipito-angulatis dense tomentosis; foliis alternis rhomboideo-ovatis 3–8 cm. longis 1-3 cm. latis acutis remote sinuato-dentatis basi integris cuneatisque supra glabris et sublucidis subtus fulvo-tomentosis; petiolis usque ad 1.5 cm. longis; inflorescentiis terminalibus corymbo-cymosis multicapitatis tomentulosis; capitulis 1 cm. altis discoideis calyculatis; involucri squamis 5 oblongis 7 mm. longis 2–2.5 mm. latis obtusis glabris vel juventate sparse arachnoideis; floribus 5; corollis infundibuliformibus flavibus vel flavo-albidis 5-dentatis; pappi setis albis corolla brevioribus; achæniis pubescentibus.—On rocky banks of river, vicinity of Camp San Benito, Oriente, Cuba, altitude 900 m., 24 February, 1910, *J. A. Shafer*, no. 4079 (hb. Field Museum, cat. no. 300837, and hb. N. Y. Bot. Garden).

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The species is well marked on account of the strongly discolorous leaves, which are densely tawny pubescent on the under surface, and by the decurrence of the petioles on the stem thus causing the younger branches to be subancipitally angled, or strongly keeled, hence the specific name.

Senecio cubensis Greenman sp. nov.

Caulis lignescens; ramulis ultimis teretibus tomentulosis; foliis alternis petiolatis lanceolatis vel lanceolato-oblongis 3–9 cm. longis 1–2.5 cm. latis acutis vel obtusis in sicco supra livido-vel atro-viridibus juventate arachnoideo-tomentulosis glabratis subtus dense et persistenter canotomentosis, marginibus integris revolutisque; petiolis 1 cm. vel minus longis; inflorescentiis terminalibus foliaceis laxe cymosis sparse tomentulosis pauci-capitatis; capitulis cylindratis minute calyculatis ca. 8 mm. altis; involucri squamis 5 linearibus acutis 6–7 mm. longis sparse subarachnoideo-tomentulosis vel glabris; floribus 5 exsertis; pappi setis albis corolla brevioribus; achæniis 3.5 mm. longis hirtellis.— Along rocky river, vicinity of Camp San Benito, Province of Oriente, Cuba, altitude 900 m., 24 February, 1910, *J. A. Shafer*, no. 4084 (hb. Field Museum, cat. no. 294788, and hb. N. Y. Bot. Garden); Camp La Gloria, south of Sierra Moa, Province of Oriente, Cuba, 24–30 December, 1910, *J. A. Shafer*, no. 8223 (hb. Field Museum, cat. no. 294805, and hb. N. Y. Bot. Garden).

A species somewhat similar to *Senecio trichotomus* Greenm., but differs in having broader leaves and leafy open few-headed cymes.

Senecio leucolepis Greenman, sp. nov.

Suffrutescens 3–4 dm. altus; caule tereti glabro; ramis ramulisque tomentosis; foliis alternis brevi-petiolatis lanceolatis vel anguste lanceolato-oblongis 1.5–5.5 cm. longis 0.5–1.5 cm. latis acutis integris supra juventate parce arachnoideo-tomentulosis glabratis subtus dense tomentosis; petiolis 3–5 mm. longis; inflorescentiis terminalibus cymosis paucicapitatis; capitulis subsessilibus cylindratis ca. 8 mm. altis 2 mm. diametro calyculatis discoideis; involucri squamis 5 lineari-lanceolatis 6 mm. longis acutis extrinsecus dense albo-tomentosis; floribus plerumque 5; corollis albis, tubo cylindrato 2.5 mm. longo faucibus sensim ampliatis subæquali, dentibus limbi 5 brevibus patentibus; pappi setis albis tenuibus corollam æquantibus; achæniis brunneis 3 mm. longis hirsutulis.— On trail from Camp Toa to Camp La Barga, Province of Oriente, Cuba, altitude 400–450 m., 22–26 February, 1910, *J. A. Shafer*, no. 4146 (hb. Field Museum, cat. no. 300836, and hb. N. Y. Bot. Garden).

The general aspect of this species is similar to *Senecio Brittonii* Greenm., but it differs in having an essentially sessile inflorescence, fewer heads, shorter and densely white-pubescent involucral bracts, and in the characters of the corolla.

Senecio pachylepis Greenman, sp. nov.

Frutex 1.5–2 m. altus; caule lignescente; ramis ramulisque teretibus glabris vel juventate dense cano-tomentosis; foliis alternis petiolatis oblongo-obovatis vel oblanceolatis 3.5–10 cm. longis 1.5–3.5 cm. latis utrinque glabris ad apicem obtusis sinuato-dentatis ad basin integris marginibus plus minusve revolutis; petiolis usque ad 1.5 cm. longis; inflorescentiis terminalibus cymosis sessilibus; capitulis discoideis calyculatis; involucri squamis 8 lanceolatis vel lanceolato-oblongis 4–5 mm. longis obtusis vel acutis glabris vel parce arachnoideo-tomentosis, bracteolis calyculatis 5 spathulatis 2–3.5 mm. longis 1 mm. latis obtusis crassiusculis; floribus 10–12 flavibus; pappi setis fulvis; achæniis striatis hirtellis.— Along rocky river trail, Rio Yamaniguey to Camp Tao, Oriente, Cuba, 22–26 February, 1910, *J. A. Shafer*, no. 4008 (hb. Field Museum, cat. no. 294785, type, and hb. N. Y. Bot. Garden).

In habit and foliar characters this species resembles *S. eriocarphus* Greenm., but differs in having a close matted tomentum on the young branches, glabrous leaves, smooth or slightly arachnoid involucral bracts, and finally in having strongly spatulate and thickened calyculate bracteoles. The plant cited under the above number has been referred to *S. plumbeus* Griseb.; but from that species, which it resembles in habit and in foliar characters, it is readily distinguished by the shorter petioles, blunter leaves, sessile crowded terminal inflorescence, and the spatulate thick calyculate bracteoles.

Senecio pachypodus Greenman, sp. nov.

Frutex 1–2 m. altus; ramis ramulisque cortice verrucoso tectis glabris ad apicem foliaceis; foliis alternis numerosis coriaceis linearilanceolatis 5–8 cm. longis 2–4 mm. latis margine integris revolutisque basi gradatim angustatis supra glabris subtus dense albo-lanatis; inflorescentiis terminalibus paucicapitatis glabris; capitulis 8–10 mm. altis calyculatis discoideis; squamellis calyculatis lineari-attenuatis ca. 6 mm. longis; involucri squamis 5 oblongo-lanceolatis ca. 7 mm. longis brevi-acuminatis obtusis penicillatisque glabris, basi crassis; floribus 5; corollis 5–6 mm. longis; pappi setis albis; achæniis columnaribus 2 mm. longis cano-pubescentibus.— Collected at Camp La Gloria, south of Sierra Moa, Province of Oriente, Cuba, 24–30 December, 1910, *J. A. Shafer*, no. 8186 (type in hb. N. Y. Bot. Garden; fragment and photograph in hb. Field Museum, cat. no. 300835).

A plant of quite unusual habit in this genus. The numerous linear leaves, tufted at the ends of the branches, and the naked stem and lower portion of the branches, roughened by the persistent bases of old leaves, render it of striking appearance, which indeed at first glance is not unlike a coniferous growth.

Senecio rivalis Greenman, sp. nov.

Verisimiliter arborescens; caule tereti glabro vel juventate arachnoideo-tomentuloso foliaceo; foliis alternis petiolatis oblongo-oblanceolatis 7–14 cm. longis 2.5–4 cm. latis acutis supra livido-viridibus glabris subtus dense albo-tomentosis, marginibus integerrimis revolutisque, basi in petiolam sensim gradatim angustatis; petiolis usque ad 2 cm. longis; inflorescentiis terminalibus cymosis arachnoideo-tomentosis; capitulis discoideis 8–10 mm. altis calyculatis; bracteolis subdeltoideis; squamis involucri 8 lanceolatis vel oblongo-lanceolatis 8 mm. longis 2–3 mm. latis acutis vel obtusis; floribus circiter 20; pappi setis rufo-albidis; achæniis parce hirtellis.— In deciduous woods and thickets, near water, Sierra Nipe, near Woodford, Province of Oriente, Cuba, altitude 450–550 m., 5 January, 1910, *J. A. Shafer*, no. 3454 (hb. Field Museum, cat. no. 294775, and hb. N. Y. Bot. Garden).

Senecio Shaferi Greenman, sp. nov.

Caule lignescens; ramis subteretibus striatis lanato-tomentosis; foliis suboppositis vel distincte alternis petiolatis lanceolatis vel lanceolato-ovatis 5–8 cm. longis 1.5–2.5 cm. latis acutis integris basi sensim in petiolam coarctati supra atro-viridibus juventate lanato-tomentosis mox glabratis subtus conspicue reticulato-venosis dense et persistente fulvo-tomentosis; inflorescentiis terminalibus corymbo-cymosis pedunculatis multicapitatis; capitulis discoideis 10–12 mm. altis calyculatis; involucri squamis 5 linearibus acutis 6 mm. longis fulvo-tomentosis; floribus 5 exsertis; pappi setis albis; achæniis cano-hirtellis.— In moist thickets on the Sierra Nipe, along trail between Piedra Gorda and Woodfred, serpentine formation, Oriente, Cuba, altitude 400–500 m., 8 December, 1909, *J. A. Shafer*, no. 3107 (hb. Field Museum, cat. no. 294771, and hb. N. Y. Bot. Garden).

Senecio trichotomus Greenman, sp. nov.

Fruticosus; ramis ramulisque teretibus striatis glabris vel glabrescentibus; foliis alternis brevi-petiolatis anguste lanceolatis 2–5 cm. longis 3–8 mm. latis acutis vel obtusis supra atro-viridibus et glabris marginibus integris revolutisque basi in petiolum angustatis; inflorescentiis dense cymosis; capitulis subcylindratis calyculatis 7–8 mm. altis discoideis; involucri squamis 5 lineari-oblongis 6–7 mm. longis acutis vel obtusis

glabris; floribus 5 paullum exsertis; pappi setis albis corolla brevioribus; achæniis hirtellis.— In deciduous woods near base of Loma Menquara, Province of Oriente, Cuba, altitude about 680 m., 1–3 February, 1910, *J. A. Shafer*, no. 3821 (hb. Field Museum, cat. no. 294780, and hb. N. Y. Bot. Garden).

A well-marked and easily recognized species on account of the trifurcate branching of stem, the narrowly lanceolate discolorous leaves, and the close inflorescence of cylindrical glabrous discoid heads.

Shafera Greenman, gen. nov. *Compositæ Senecioneæ.*

Capitula homogama discoidea calyculata. Involucrum campanulatum, squamis 3–4-seriatis imbricatis lanceolatis exterioribus gradatim brevioribus. Receptaculum planum vel paulo convexiusculum foveolatum et breviter fimbrilliferum. Corollæ tubulosæ angustæ elongatæ sursum gradatim ampliatæ, limbo æqualiter 5-dentato. Antheræ basi brevissime setaceo-mucronatæ apice distincte appendiculatæ. Styli rami subcomplanati brevirecurvato-patentes, apice obtusi. Achaenia subteretia columnaria costata. Pappi setæ copiosæ tenues albæ persistentes.— Herbæ scandentes perennes. Folia alterna late ovata.

S. platyphylla Greenman, sp. nov.

Caulis subangularis dense tomentosus; foliis petiolatis, limbo crassiusculo late ovato vel elliptico-oblongo 7–14 cm. longo 5–11 cm. lato apice rotundato integerrimo basi obtuso vel subcordato juventate utrinque tomentoso supra mox glabratis et valide reticulato-venoso subtus dense et persistente fulvo-tomentoso; petiolis usque ad 4 cm. longis tomentoso-pubescentibus; inflorescentiis axillaribus terminalibusque paucicapitatis; capitulis calyculatis 2–2.5 cm. altis et diametro multifloris, bracteolis calyculatis spathulato-oblongis 1–1.5 cm. longis 3–5 mm. latis dense tomentosis; involucri squamis numerosis 3–4-seriatis lanceolatis 8–10 mm. longis 2.5–3.5 mm. latis acutis extrinsecus dense fulvo-tomentosis exterioribus brevioribus; flosculis numerosis; pappi setis albis corolla brevioribus; achæniis maturatis 4 mm. longis costatis cano-hirsutis.— Collected at Camp Gloria, south of Sierra Moa, Province of Oriente, Cuba, 24–30 December, 1910, *J. A. Shafer*, no. 8134 (hb. Field Museum, cat. no. 294802, and hb. N. Y. Bot. Garden).

The plant here described belongs to the *Senecioneæ* and is related to the genus *Senecio* from which, however, it differs in having the bracts in three or four series and in the obtuse style-branches. It seems to be related on the one hand to *Senecio* and on the other to *Culcitium*, but

amply distinct from both. The angulate stem, the large thick almost leathery leaves with a dense permanent tomentum on the under surface, combined with the large heads and many bracted involucre, give the plant a most striking appearance quite distinct from anything known to the writer. The genus is dedicated to the keen and indefatigable collector for the New York Botanical Garden Mr. J. A. Shafer.

II.—DIAGNOSES OF NEW SPECIES AND NOTES ON OTHER SPERMATOPHYTES, CHIEFLY FROM MEXICO AND CENTRAL AMERICA.

By J. M. GREENMAN.

The diagnoses and notes following are the results of critical study in the determination of several collections of plants which have been received from time to time during the last few years at the Field Museum of Natural History for identification. Particularly valuable series have been received from Professor Cassiano Conzatti, from the late Professor W. A. Kellerman, from Mr. Charles R. Orcutt, and from the late Professor Charles R. Barnes and Dr. W. J. G. Land. These collections while not containing a large percentage of new plants do include many which belong to recently published and hence little-known species; thus there are here introduced several brief notes, relating to additional localities for such species, which it is hoped may be helpful in tracing their geographical distribution.

Tradescantia angustifolia Rob. Proc. Am. Acad. xxvii. 185 (1892).

The type of this species is perfectly matched by specimens collected on the Cerro de San Antonio de la Cal, State of Oaxaca, Mexico, altitude 1700 m., 18 August, 1907, *C. Conzatti*, no. 1995 (hb. Field Museum).

Ficus subrotundifolia Greenm. Proc. Am. Acad. xli. 237 (1905).

Specimens agreeing in all essential details with this species were collected at Chichen Itza, State of Yucatan, Mexico, 28 January and 10 February, 1901, *E. W. Goldman*, no. 553 (hb. Field Museum). *Dr. Geo. F. Gaumer's*, no. 599, coll. of 1905 from Yucatan seems also to be conspecific.

Phoradendron Robinsonii Urban, Engl. Bot. Jahrb. xxiii. Beibl. lvii. 4 (1897).

This species, which was based on no. 6272 of Mr. C. G. Pringle's *Plantæ Mexicanæ*, has been collected at San Nicolás, Tehuacan, State of Puebla, Mexico, altitude 2000 m., 22 June, 1908, *C. Conzatti*, no. 2199 (hb. Field Museum). The species is well marked and one of the most attractive of the genus.

Aristolochia oaxacana Eastwood, Proc. Am. Acad. xliv. 603 (1909).

Complete flowering and fruiting specimens secured by Professor *C. Conzatti* at Camino Montelobos, Dto. Nochixtlán, De Rancho Nopalera á Huitzo, State of Oaxaca, Mexico, altitude 2000 m., 23 June, 1907, no. 1838 (hb. Field Museum) have been compared with the type of the above species and accord in all essential details. The present collection records another station in determining the distribution of a very interesting and distinct species.

Celosia Orcuttii Greenman, sp. nov.

Suffruticosa (?); caule striato-anguloso ferruginoso glabro; foliis brevipetiolatis lanceolatis acutis vel mucronatis integerrimis basi attenuatis utrinque glabris flavo-viridibus; inflorescentiis pyramidopaniculatis usque ad 4 dm. longis 2.5 dm. latis inconspicue ferrugineopuberulentis vel hirtellis; floribus sessilibus; bracteis trangulare-ovatis acutis 1 mm. vel minus longis; bracteolis obliquo-ovatis 1. mm. longis uninerviis; sepalis ovatis vel ovato-ellipticis subnavicularibus circiter 2.5 mm. longis acutis vel obtusis 5–7-nerviis glabris pallido-straminibus et persistentibus; cupulo staminorum circiter 1 mm. alto; utriculo maturo incluso subgloboso circumscisse dehiscens; seminibus lenticularibus nitidulis 1–1.5 mm. diametro.— Mexico. State of Colima: vicinity of Colima, 24 October, 1910, *C. R. Orcutt*, no. 4587 (hb. Field Museum cat. no. 283404).

A species similar to *C. Moquini* Guillem., but with smaller yellowish-green leaves, reddish-brown stem and inflorescence, and with uniformly pale-stramineous instead of more or less fuscous sepals, and with a sessile instead of stipitate utricle.

Pfaffia Hookeriana (Hemsl.) Greenman, comb. nov. *Hebenanthe Hookeriana* Hemsl. Biol. Cent.-Am. Bot. iii. 19 (1882).

Apoplanesia paniculata Presl Symb. Bot. i. 63, t. 41 (1831).

The punctate leaflets, persistent samara-like calyx-lobes and short glandular fruit render this species, although apparently somewhat rare, an easily recognized one. It is well represented by specimens secured by *Dr. G. M. Emrick* at Tecoman, State of Colima, Mexico, November, 1906, nos. 153, 154 (hb. Field Museum), and by collections made at Manzanillo, Mexico, 1890–91, *Dr. Edward Palmer*, nos. 967, 1373*a*, and 1810 (hb. U. S. Nat. Museum). These collections extend the known geographical range of the species considerably to the north of previously recorded localities.

Cæsalpinia Gaumeri Greenman, sp. nov.

Arbor 15–20 m. alta inrerma; amis ramulisque teretibus glabris cortice griseo tectis; foliis petiolatis stipulatis impari- vel abrupte-

pinnatis, pinnis 2–3-jugis; foliolis sessilibus oppositis vel alternis oblongis vel oblongo-obovatis 1–2 cm. longis apice rotundatis vel subemarginatis integris glabris basi cuneatis et plus minusve obliquis, juventate punctatis, maturate utrinque reticulato-venosis supra sublucidis subtus pallidioribus; petiolo communi glabro usque ad 3 cm. longo; rhachis et rhachillis plerumque crispo-puberulentis; stipulis ovatis ca. 4 mm. longis cuneatis punctatis caducis; racemis subterminalibus 1–1.5 dm. longis multifloris glabris vel sparse puberulentis, pedicellis gracilibus 8–14 mm. longis superne incrassatis infra apicem articulatis et sparse glandulosis; floribus 1.5–2 cm. diametro; calycis limbi laciniis oblongis 5–8 mm. longis 3–4 mm. latis glandulosis utrinque minute sed plus minusve dense tomentulosis; petalis 5 flavis glanduliferis basi pilosis; staminibus corollæ subæqualibus supra basin stipitatam glandulosis et pilosis; ovario dense glandulifero et sparse piloso.— Yucatan: Progresso, 5 March, 1899, *Dr. C. F. Millspaugh*, no. 1675 (hb. Field Museum, cat. no. 61675, type); Izamal, *Dr. Geo. F. Gaumer*, no. 349 (hb. Field Museum, cat. no. 36152), and coll. of 1888, without number (hb. Field Museum, cat. no. 181486; San Anselmo, *Dr. Geo. F. Gaumer*, no. 1623 (hb. Field Museum, cat. no. 58421).

This species is named in honor of Dr. George F. Gaumer who first collected the plant in 1888. Dr. Gaumer states that it is a tree often becoming sixty feet in height and is abundant in the brush and forest lands about Izamal, where it is known by the native name of Xcitinché.

Dalea delicata (Rose) Greenman, comb. nov. *Parosela delicata* Rose Contr. U. S. Nat. Herb. viii. 304 (1905).

Specimens collected in Mexico by *Mr. C. R. Orcutt*, no. 4215 (hb. Field Museum, cat. no. 282126) agree in all details with the original material on which this species was based.

Dalea vernicia (Rose) Greenman, comb. nov. *Parosela vernicia* Rose Cont. U. S. Nat. Herb. viii. 303 (1905).

In addition to the original material on which this species was founded, the following specimens are here referred: Sluice-way above power house, Barranca de Oblatos, State of Jalisco, Mexico, altitude 1110 m., 29 September, 1908, *Barnes & Land*, no. 211 (hb. Field Museum); railroad banks, along the Mexican Central Railway below Tuxpan, altitude 1170 m., State of Jalisco, Mexico, 9 October, 1908, *Barnes & Land*, no. 337 (hb. Field Museum).

Desmodium Conzattii Greenman, sp. nov.

Frutex 1–1.5 m. altus, ramulis ramulisque subadpresso-sericeis; foliis brevi-petiolatis trifoliolatis, foliolis elliptico- vel oblongo-lanceolatis 1.5–3.5 cm. longis 0.5–1.5 cm. latis acutis integris utrinque adpresso-sericeis

subtus pallidioribus et reticulato-venosis, stipulis triangulari-lanceolatis 6–7 mm. longis albo-sericeis subpersistentibus, petiolis 3–8 mm. longis dense pubescentibus, petiolulis circiter 1 mm. longis, stipellis filiformibus; racemis terminalibus axillaribusque dense floriferis 2–4 cm. longis, rhachis albovillosis; bracteis ovato-lanceolatis 6–10 mm. longis acuminatis subchartaceis brunneis sericeo-villosis; floribus pedicellatis, pedicellis 3–5 mm. longis puberulis; calycibus sericeo-pilosis persistentibus, dentibus acutis; petalis purpureis vel pallido-purpureis; leguminibus stipitatis uncinulato-puberulentis, 3–6-articulatis.— Mexico. State of Oaxaca: San Bernardino, District of Teotitlan, altitude 2000 m., 11 December, 1907, *C. Conzatti*, no. 2117 (hb. Field Museum, cat. no. 225895, type); Sierra de San Felipe, altitude 2430 m., 13 October, 1894, *C. G. Pringle*, no. 4983 (hb. Field Museum, hb. Gray, hb. U. S. Nat. Museum, and hb. N. Y. Bot. Garden) distributed as "*Desmodium Jaliscanum* Watson." Valley of Oaxaca, altitude 2000-3000 m., 3 October, 1894, *E. W. Nelson*, no. 1528 (hb. U. S. Nat. Museum); mountains of Telixtlahuaca, altitude 2285 m., 18 October, 1895, *Rev. Lucius C. Smith*, no. 868 (hb Gray); Cuicatlan, altitude 500 m., 2 December, 1897, *C. Conzatti & V. Gonzalez*, no. 659 (hb. Gray); Oaxaca, 23 October, 1899, *E. W. Nelson*, no. 3723 (hb. Gray). The species here described differs from *D. jaliscanum* Watson in having uniformly shorter petioles, smaller leaflets and puberulent pods. *D. Conzattii* suggests *D. amplifolium* Hemsl., but that species again has longer petioles, larger leaflets, and stipules of quite different outline.

Desmodium pinetorum (Rose & Painter) Greenman, comb. nov.

Meibomia pinetorum Rose & Painter Bot. Gaz. xl. 144 (1905).

In addition to the material cited under the orginal publication, the following collections well represent this species: Real del Monte, State of Vera Cruz (?), Mexico, *Dr. Th. Coulter*, without number (hb. Gray); banks of the Avenida Hidalgo, Tezuitlan, State of Hidalgo, Mexico, 27 October, 1908, *Barnes & Land*, no. 549 (hb. Field Museum).

Mimosa Xanti Gray Proc. Am. Acad. v. 157 (1861).

Fruiting specimens collected at Cerro San Antonio, Distrito del Centro, State of Oaxaca, Mexico, altitude 1700 m., 6 September, 1908, *C. Conzatti*, no. 2239 (hb. Field Museum), agree well with the type of this species in the Gray Herbarium and with material secured at San Jose del Cabo, Lower California, 9 September, 1890. The species has not been recorded hitherto outside of Lower California. Notwithstanding the considerable remoteness of Professor Conzatti's station from the peninsular localities for the species there can be no doubt of the identity of the Oaxaca specimens with the above species.

Bunchosia Lindeniana Ad. Juss. Arch. Mus. Paris, iii. 335 (1843).

Specimens collected at Santa Maria del Tule, altitude 1550 m., State of Oaxaca, Mexico, *C. Conzatti*, no. 1679 (hb. Field Museum) in flower, and at the same station 12 May, 1907, *C. Conzatti*, no. 1798 (hb. Field Museum) in fruit, agree well with the original description of the above species. The drupaceous fruit is subglobose, 2 to 2.5 cm. in diameter; the seeds, moreover, are discoidal and about 1.5 cm. broad.

Condalia pedunculata Brandg. Univ. Calif. Pub. Bot. iii. 384 (1909).

This recently described species has been collected at Cuesta de Quiotepec, Dto. Cuicatlán, State of Oaxaca, Mexico, alt. 700 m., 21 June, 1909, Plantæ Mexicanæ *C. Conzatti*, no. 2414 (hb. Field Museum). Professor Conzatti's specimen agrees well with the type and records a second station towards ascertaining the geographical distribution of the species.

Malvaviscus Conzattii Greenman, sp. nov.

Frutex; ramis teretibus glabris; ramulis stellato-pubescentibus; foliis petiolatis ovatis 2.5–6 cm. longis 1.5–4.5 cm. latis inæqualiter crenato-dentatis obtusis basi sæpissime brevi-cordatis supra hispidulis subtus pallidioribus sparsissime stellato-pubescentibus glabratisque; petiolis 5–18 mm. longis pilosis; floribus axillaribus solitariis, pedicellis 1–3 cm. longis pubescentibus; bracteolis calycis circiter 8 spathulatis calyce brevioribus obtusis plus minusve ciliatis; calycis 1.2–1.5 cm. longis 5-lobatis conspicue venosis extus sparsissime et minute stellato-pubescentibus, lobis æqualibus ovatis acutis vel obtusis ad apicem ciliatis intus pulverulentis; corollis 4.5–5 cm. longis rubris, petalis oblongo-cuneatis, basi unilaterali conspicue auriculatis; staminibus stylisque exsertis.— Mexico. State of Oaxaca: San Pablo, Huitzo, alt. 1600 m., 25 August, 1907, *C. Conzatti*, no. 1981 (Field Museum, cat. no. 226144, type); Santo Domingo, alt. 1600 m., 22 December, 1906, *C. Conzatti*, no. 1683 (hb. Field Museum, and U. S. Nat. Museum).

In general appearance this species resembles *M. arboreus* Cav., but it differs in having uniformly shorter petioles and fully twice larger corollas. The flowers of *M. Conzattii* suggest those of *M. grandiflorus* HBK., but from the original description of that species it differs markedly in foliar and calyx characters.

Robinsonella cordata Rose and Baker f. Gard. & Forest x. 244, *fig. 31* (1897).

Specimens representing this species were collected by Professor *C. Conzatti* on the hacienda de Guadalupe, Oaxaca, Mexico, altitude 1600

m., December 6, 1908, no. 2322 (hb. Field Museum). Professor Conzatti's specimens are in full flower, but the leaves are not entirely expanded, thus giving at first glance a very different appearance from the type specimens secured by Dr. Pringle in 1895. In all essential characters there is exact correspondence. This collection records a second known locality for this very distinct and showy species.

Passiflora platyneura Eastwood, Proc. Am. Acad. xliv. 604 (1909).

Specimens collected at De Pueblo Viejo al Rancho Nopalera, Dto. de Nochixtlán, State of Oaxaca, Mexico, altitude 2500 m., 22 June, 1907, *C. Conzatti*, no. 1834*a* (hb. Field Museum) correspond well with the type of the above species in the Gray Herbarium.

Bumelia eriocarpa Greenman & Conzatti, sp. nov.

Arbor (?) vel frutex; ramis inermis vel spinescentibus crebre nodosis juventate cinereo-tomentosis deinde glabratis; foliis alternis petiolatis coriaceis oblongo-ellipticis 2.5–10 cm. longis 1–3 cm. latis ad apicem rotundatis vel subemarginatis integris basi cuneatis supra primum tomentulosis mox glabratis plus minusve lucidisque subtus dense et persistenter fulvo-tomentosis; petiolis 3–10 mm. longis; floribus sessilibus vel brevipedicellatis numerosis fasciculatim aggregatis, fasciculis plerumque multifloris; calycis segmentis orbiculari-ovatis extus ferrugineo-pubescentibus intus glabris; corollæ appendicibus anguste obliquo-lanceolatis acuminatis lobis oblongo-obovatis subæquantibus; staminodiis ovatis acuminatis subobtusis, lobis corollæ pæne æquantibus; ovario dense piloso; fructibus subglobosis vel oblongo-obovoideis 13–22 mm. longis 13–18 mm. diametro dense ferrugineo-tomentosis; seminibus subglobosis usque ad 13 mm. diametro.— Mexico. State of Oaxaca: Cerro San Antonio, altitude 1700 m., 28 October, 1906, *C. Conzatti*, no. 1586 (Field Museum, cat. no. 241796, type); Cerro del Tule, altitude 1700 m., 31 March, 1907, *C. Conzatti*, no. 1772 (hb. Field Museum, cat. no. 225938); Cerro San Antonio, altitude 1600 m., 27 October, 1907, *C. Conzatti*, no. 2028 (hb. Field Museum, cat. no. 225794).

Specimens of Conzatti's no. 1586 were sent to the Kew Herbarium for comparison with *Bumelia subsessiliflora* Hemsl. with which species the plant in question seemed from description to be most closely related. Mr. N. E. Brown has very kindly made a careful comparison for me and states that the Conzatti plant is not only specifically different from *B. subsessiliflora*, but that it is distinct from all the species of *Bumelia* represented at Kew. From the several characters noted by Mr. Brown as distinguishing *B. eriocarpa* from *B. subsessiliflora* may

be mentioned the following: thicker and much more conspicuously tomentose stem, thicker and more coriaceous leaves which are persistently tomentose (not glabrous) when old, and finally slightly longer and thicker pedicels and rather larger flowers.

Eustoma Russellianum G. Don in Sweet Hort. Brit. ed. III. 473 (1839), forma **leucantha** Greenman, f. nov.

Corolla albida; ceteris formæ typicæ simillima.— Border of black land prairie, Montgomery County, Texas, 18–21 July, 1909, *Royal A. Dixon*, no. 479 (hb. Field Museum, cat. no. 248395).

Halenia Conzattii Greenman, sp. nov.

Herba erecta ramosissima 3–4 dm. alta foliosa glabra; caulibus ramisque teretibus vel nonnihil angularibus; foliis sessilibus lanceolatis 1.5–3.5 cm. longis 0.5–1 cm. latis acutis integris trinerviis basi sensim angustatis; cymis terminalibus axillaribusque; pedicellis usque ad 2 cm. longis gracilibus subalato-tetrangularibus; calycis segmentis obovato-spathulatis 6–8 mm. longis 2–3 mm. latis acutis vel obtusis foliaceis; corollis 8–12 mm. longis viridibus vel flavo-viridibus, corollæ lobis oblongo-ovatis 3–5 mm. longis breviacuminatis acutis viridibus, calcaribus tenuibus pendulis rectis vel incurvis 1.5–2 mm. longis; staminibus inclusis; capsulis oblongo-lanceolatis 15–18 mm. longis subfalcatis; seminibus numerosis subglobosis.— Mexico. State of Oaxaca: Cerro San Felipe, Distrito del Centro, altitude 2000 m., 20 September, 1908, *C. Conzatti*, no. 2295 (hb. Field Museum, cat. no. 239593); Sierra de San Felipe, altitude 3050 m., 15 September, 1894, *C. G. Pringle*, no. 4908 (hb. Gray and hb. U. S. Nat. Museum); Cerro (Sierra) San Felipe, altitude 3000–3350 m., coll. of 1894, *E. W. Nelson*, no. 1115 (hb. Gray). This species is well-marked on account of the obovate-spatulate foliaceous calyx-segments, the green or greenish corolla, and short straight or slightly incurved spurs. It is perhaps nearest allied to the little-known *Halesia elongata* Don, but that species is said to have *linear-lanceolate* leaves.

Ipomœa Conzattii Greenm. Field Col. Mus. Bot. Ser. ii. 258 (1907).

Specimens of this species have been recollected at the original locality, and these together with detailed notes from Professor Conzatti permit of the following additional characters to be recorded: roots tuberiform about 5 cm. in diameter in the dried state; leaves petiolate, ovate, entire or 3-lobed, obtuse to distinctly cordate at the base, acute or acuminate, terminated by a mucro, dark green and sparingly crisp-hirsute above, paler and subtomentose beneath; petioles 1 to 5 cm. long, pubescent.— Mexico. State of Oaxaca:

procedente de Almoloyas, altitude 800 m., 15 August, 1907, *C. Conzatti*, no. 1959 (hb. Field Museum). The plant is known in Oaxaca by the venacular name of "*Jicama del Monte*."

Ipomœa dasysperma Jacq. Eclog. i. 132, *t. 89* (1811–1816).

This species was described from plants grown in the garden of the University of Vienna from seeds which, it is stated, were sent from England in 1814; the seeds, it is said moreover, came originally from China. The correspondence of the specimens at hand with the description and illustration in Jacquin's *Eclogiæ* is so strikingly coincident there can be little doubt that we are dealing with one and the same species. It is quite possible that there may have been some mixture of the seeds grown, as it is a well known fact that Jacquin at this time was growing many American plants in Vienna, and it is not unlikely that he may have confused certain American importations with the seeds which were supposed to have come indirectly from China. At all events several complete specimens at hand agree in all essential details with the above species, as it is characterized and illustrated, and the writer has no hesitation in referring thereto the following Mexican plants.— State of Yucatan: Merida, 20 August, 1865, *A. Schott*, no. 589 (hb. Field Museum); Izamal, coll. of 1896, *Dr. Geo. F. Gaumer*, no. 989 (hb. Field Museum); Chichankanab, *Dr. Geo. F. Gaumer*, nos. 1393, 1472 (hb. Field Museum).

Ipomœa oaxacana Greenman, sp. nov. *I. dimorphophylla* House Ann. N. Y. Acad. Sci. xviii. 257 (1908), in part, not Greenman.

Caule volubili lignescenti glabro subtereti; ramis ramulisque juventate pilosis glabratis; foliis petiolatis ovatis 2.7 cm. longis 1–4.5 cm. latis acutis vel acuminatis mucronatis integris vel 3-lobatis basi obtusis vel subcordatis supra glabris vel sparse pilosis subtus persistenter griseo-tomentulosis, petiolo gracili usque ad 4 cm. longo sparse piloso; inflorescentiis axillaribus subsessilibus brevi-pedunculatis 1–6 floribus; pedicellis 1.5 cm. vel minus longis sursum plus minusve incrassatis albo-tomentulosis; calyce profunde 5-lobato, lobis inæqualibus ovato-oblongis 5–8 mm. longis apice rotundatis vel emarginatis cuspidatisque integris glabris; corolla tubulo-campanulata 6–7 mm. longa alba vel in plicis rubella glabra; ovario ovideo glabro; stylo persistente basi piloso.— Mexico. State of Oaxaca: Cerro San Antonio, Distrito de Etla, altitude 1700 m., 27 October, 1907, *C. Conzatti*, no. 2057 (hb. Field Museum, cat. no. 225829, type); Cerro de Frujano, altitude 1800 m., Distrito del Centro, 15 November, 1908, *C. Conzatti*, no. 2313 (hb. Field Museum); on talus cliffs, Sierra de San Felipe, altitude 2135 m.,

11 October, 1894, *C. G. Pringle*, no. 5677 (hb. Gray); hills of Soledad de Etla, altitude 1985 m., 19 November, 1895, *C. Conzatti*, no. 968 (hb. Gray); Cerro San Felipe, altitude 1750 m., 10 October, 1897, *C. Conzatti & V. Gonzalez*, no. 505 (hb. Gray).

The species here proposed resembles *I. dimorphophylla* Greenm. to which some of the collections cited above have been referred. *I. oaxacana*, however, differs from *I. dimorphophylla* in having a distinctly woody stem, uniformly shorter peduncles, persistently pubescent lower leaf-surface, and conspicuously white-tomentulose pedicels.

Ipomœa præcana House, Ann. N. Y. Acad. Sci. xviii. 227 (1908).

Hereto are referred excellent flowering and fruiting specimens collected by *C. Conzatti* at Estacion Almoloyas, altitude 800 m., State of Oaxaca, Mexico, 29 September, 1907, *Conzatti*, no. 2052, in flower (hb. Field Museum); De Almoloyas á Sta. Catarina, altitude 1000 m., State of Oaxaca, Mexico, 26 December, 1906, *Conzatti*, no. 1656, in fruit (hb. Field Museum). Señor Conzatti's specimens have been compared with the type at the Gray Herbarium and are certainly conspecific. The material, however, shows additional characters and some variation in size of flowers which may be recorded as follows: Inflorescentia cymosa; pedunculis 1–5-floris; corollis usque ad 12 cm. longis; capsulis ovato-oblongis circiter 2 cm. longis, glabris; seminibus obovato-oblongis, 10–12 mm. longis, propter marginibus comatis, comis 1–1.5 cm. longis.

Bourreria obovata Eastwood, Proc. Am. Acad. xliv. 606 (22 May, 1909). *Beurreria strigosa* Brandegee, Univ. Calif. Pub. Bot. iii. 390 (24 May, 1909).

Excellent flowering specimens of a very attractive Mexican shrub have been communicated to the writer by Professor C. Conzatti for identification; these were compared recently at the Gray Herbarium with the type of Miss Eastwood's *Bourreria obovata* and prove to be identical. Only two days subsequent to the date of publication of Miss Eastwood's paper, Mr. Brandegee issued a paper dealing with a collection of plants made in Mexico by Dr. C. A. Purpus and among other novelties described *Beurreria strigosa* founded on *Purpus'* no. 3360. This material is almost the counterpart of the type of *B. obovata*, hence by the rule of priority *B. strigosa* must give way to the earlier published name. In addition to the material cited in the above publication the following may be recorded: Cuesta de Quiotepec, District of Cuicatlán, Mexico, altitude 600 m., 21 June, 1909, *C. Conzatti*, no. 2480 (hb. Field Museum).

Bourreria pulchra Millsp., comb. nov. *Cordia pulchra* Millsp. in Engl. Bot. Jahrb. xxxvi. Beibl. lxxx. 24 (1905).

A re-examination of the specimens on which this species was founded, in the light of additional material, shows the generic affinity to be with *Bourreria* rather than with *Cordia*. In addition to the specimens cited under the original description the following collection is here referred.— Mexico. State of Yucatan: Colonia San Cosme, vicinity of Merida, 20 February, 1906, *J. M. Greenman*, no. 360 (hb. Field Museum). The plant is rather common at this station where it grows as a shrub from 1 to 2 m. high and produces corymbose-paniculate clusters of numerous creamy white flowers the fragrance of which is at first pleasing but soon becomes heavy and somewhat unpleasant.

Cordia appendiculata Greenman, sp. nov.

Frutex 1.5–4 m. altus; ramis teretibus hispido-strigosis et pilis minute puberulentis intermixtis; foliis petiolatiso vato-lanceolatis 3–7 cm. longis 1.2–3 cm. latis acutis leviter crenato-serratis, basi cuneatis supra scabris subtus pallidioribus griseo-strigosis; petiolis .5–1.5 cm. longis pubescentibus; pedunculis terminalibus et lateralibus 3–6 cm. longis hirsuto-strigosis; capitulis globosis 2–2.5 cm. diametro; calyce 8–10 mm. longo 5-lobato cano-strigoso-hirsuto; lobis ovatis circiter 2 mm. longis acutis vel paullo acuminatis dorso infra apicem appendiculatis, appendicibus setaceis 3–6 mm. longis hirsutis; corolla 2–2.6 cm. longa alba membranacea infundibuliformi extrinsecus intusque glabra calyce circiter triplo longiore, limbo 2–3 cm. diametro; staminibus 5 inclusis inæqualibus; stylo et ovario glabro; fructu ignoto.— Mexico. State of Oaxaca: Cañon de Tomellin, Dto. de Cuicatlán, altitude 700 m., 20 June, 1908, *Carlos & Cassiano Conzatti*, no. 2218 (hb. Field Museum cat. nos. 235154, 246874, type); Tomellin Canyon, alt. 760 m., 18 May, 1894, *C. G. Pringle*, no. 4630 (hb. Gray and hb. U. S. Nat. Museum); between San Geronimo and La Venta, 13 July, 1895, *E. W. Nelson*, no. 2785 (hb. Gray); Cuesta de Quiotepec, alt. 1525 m., 13 August, 1895, *Lucius C. Smith*, no. 700 (hb. Gray).

The species here described resembles superficially *C. macrocephala* HBK. with which it had been confused, but differs in having larger leaves and appendaged calyx-lobes.

Cordia brevispicata Mart. & Gal., var. **hypomalaca** Greenman, var. nov.

Habitu et floribus formæ typicæ; foliis 2–6 cm. longis .5–1.5 cm. latis hirsuto-hispidulis subtus niveo-tomentosis; spicis plerumque longe pedunculatis usque ad 12 cm. longis.— Mexico. State of Oaxaca: Cerro San Felipe, altitude 1700 m., 30 June, 1907, *C. Conzatti* no. 1831 (hb. Field Museum, cat. nos. 225986 and 246873).

Ehretia tehuacana Greenman, sp. nov.

Arbor (?); ramis teretibus glabris; ramulis juventate glandulosopuberulentis et interdum sparsissime hirsutis ætate glabris; foliis petiolatis ovato-oblongis 4–8.5 cm. longis 2–5 cm. latis acutis vel rotundatis apicem versus dentatis infra mediam integerrimis basi plus minusve inæqualibus obtusis vel subrotundatis supra hispidoscabris atroviridibus subtus pallidioribus cano-hirsutisque; petiolis 0.5–1.5 cm. longis pubescentibus; calyce campanulato 2.5–3 mm. longo 5-lobato subglabro, lobis ovatis acutis ciliatis; corolla alba (?) infundibuliformi circiter 10 mm. longa glabra, limbo 5-lobatis, lobis ovato-rotundatis 2.5 mm. longis 2 mm. latis patentibus; staminibus exsertis; drupa ovoidea 6–8 mm. longa glabra; seminibus subcylindratis circiter 4 mm. longis.— Mexico. State of Puebla: las Mohoneras, Tehuacán, altitude 2200 m., 22 June, 1908, *C. Conzatti*, no. 2220 (hb. Field Museum, cat. no. 235156, type), flowering specimen; San Nicolás, Tehuacán, alt. 2000 m., 22 June, 1908, *C. Conzatti*, no. 2221 (hb. Field Museum, cat. no. 235157), fruiting specimen. Of the known species, *E. tehuacana* is most nearly related to *E. viscosa* Fernald, from which it may be readily distinguished by the more oblong leaves, larger flowers and less glandular tomentum; the calyx is nearly twice as large as in *E. viscosa* and except for the ciliation it is essentially glabrous.

Lithospermum Conzattii Greenman, sp. nov.

Herbaceum perenne 3–4 dm. altum; caulibus basi lignosis erectis vel adscendentibus hirsutis et subcrispo-strigosis; foliis sessilibus lanceolatis vel lanceolato-oblongis 1–7 cm. longis 4–14 mm. latis acutis integris utrinque adpresso-tuberculato-hispidis supra atro-viridibus subtus pallidioribus; racemis usque ad 13 cm. longis foliaceis; floribus brevi-pedicellatis, pedicellis 2–5 mm. longis; calycis lobis lineari-lanceolatis 5–7 mm. longis hirsutis; corolla tubiformi 8–10 mm. longa externe pilosa 5-lobata, lobis subrotundatis; staminibus inclusis, antheris subsessilibus; nuculis ovoideis 4–5 mm. longis nitidis levibusque. — Mexico. State of Oaxaca: de Huauclilla á Nochixtlán, Rancho Pozuclos, altitude 2400 m., 19 June, 1907, *C. Conzatti*, no. 1846 (hb. Field Museum, cat. no. 226002, type). Habitally resembling *L. calcicola* Rob. from which it differs in having larger flowers and smooth nutlets.

Lantana macropodioides Greenman, nom. nov. *Lantana pupurea* Benth. & Hook. f. Gen. Pl. ii. 1142 (1876), not Hornem. Hort. Hafn. ii. 583 (1815). *Lippia purpurea* Jacq. f. Eclog. i. 126, *t.* 85 (1816); DC. Prodr. xi. 581 (1847), excluding synonomy.

To this species are referred the following.— Mexico. State of Coahuila: Soledad, about 15.5 kilometers southwest of Monclova, 9–19 September, 1880, *Dr. Edward Palmer*, no. 1023 (hb. Field Museum).

State of Nuevo Leon: valley near Monterey, altitude 500 m., 1 September, 1903, *C. G. Pringle*, no. 11671 (hb. Field Museum). State of San Luis Potosi: San Diequito, 13–16 June, 1904, *Dr. Edward Palmer*, no. 139 (hb. Field Museum). State of Morelos: hills near Yautepec, altitude 1220 m., 21 October, 1902, *C. G. Pringle*, no. 11081 (hb. Field Museum); near Cuernavaca, altitude 1525 m., 11 September, 1903, *C. G. Pringle*, no. 11672 (hb. Field Museum); Cuernavaca, 31 August, 1901, *C. R. Orcutt*, no. 3880 (hb. Field Museum). State of Puebla: El Riego, July, 1905, *C. A. Purpus*, no. 1298 (hb. Field Museum); vicinity of San Luis Tultitlanapa, July, 1908, *C. A. Purpus*, no. 3410 (hb. Field Museum). State of Vera Cruz: Orizaba, altitude 1220 m., 31 July, 1891, *H. E. Seaton*, no. 136 (hb. Field Museum). State of Oaxaca: Les Sedas, altitude 1830 m., 3 December, 1895, *C. G. Pringle*, no. 6270 (hb. Field Museum); San Pablo Etla, altitude 1700 m., 22 September, 1907, *C. Conzatti*, no. 2064 (hb. Field Museum). Honduras. Piedra pintada, near Copan, altitude 900 m., 8 January, 1907, *H. Pittier*, no. 1831 (hb. Field Museum and hb. U. S. Nat. Museum).

Habitally this species resembles *Lantana macropoda* Torr. and has often been confused with it, but may be distinguished readily by the larger, acuminate and sharply dentate leaves, coarser and more scattered pubescence.

Lippia albicaulis Greenman, sp. nov.

Frutex 3 m. altus; ramis teretibus cortice albo tectis, ramulis novellis tetragonis puberulentis et minute setoso-aculeatis glabratis; foliis petiolatis elliptico-lanceolatis 5–10 cm. longis 2–4 cm. latis acutis ad apicem crenato-dentatis infra mediam integris basi cuneatis supra hispidulis subtus pallidioribus et præcipue ad venas laxe hirtello-puberulentis; pedunculis axillaribus solitariis bis quaternis gracilibus usque ad 3 cm. longis substrigillosis et atamifero-glandulosis; capitulis subglobosis circiter 1 cm. diametro, bracteis laxe imbricatis lato-ovatis vel subreniformibus acutis vel breviter subacuminatis 6–7 mm. longis 4–9 mm. latis membranaceis hirtello-puberulis ciliatisque; calyce subvilloso 2–2.5 mm. longo; corolla parva circiter 3 mm. longa externe atomifero-glandulosa fauce pulverulente 4-lobatis, lobis inæqualibus subrotundatis; staminibus inclusis, antheris sessilibus vel subsessilibus; coccæ glabræ 1.5–2 mm. longæ.—Mexico. State of Yucatan: near Izamal, coll. of 1896, *Gaumer*, no. 971 (hb. Field Museum, cat. no. 37319, type); in the same locality, *Gaumer*, no. 871 (hb. Field Museum); Chichankanab, *Gaumer*, no. 1475 (hb. Field Museum); Calotmul, *Gaumer*, no. 2109 (hb. Field Museum).

In general appearance *L. albicaulis* resembles *L. umbellata* Cav. with

which a part of the material above cited has been hitherto confused. The more striking characters distinguishing *L. albicaulis* from *L. umbellata* and other species of the immediate group to which it belongs are its smooth ashy white stem and branches, puberulent branchlets, dark green elliptic-lanceolate leaves which are but slightly pubescent on both surfaces.

Lippia (§Rhodolepis) Kellermanii Greenman, sp. nov.

Frutex, ramis ramulisque plus minusve tetragonis ad nodos compressis cortice brunneo tectis dense pubescentibus cum pilis hirsutis et glanduliferis; foliis brevipetiolatis ovatis 3–18 cm. longis 1.5–10 cm. latis acuminatis crenato-dentatis ad basin cordatis vel abrupte contractis et obtusis supra rugosis et scabrido-hispidis subtus hirsuto-tomentosis; petiolis 0.5–1.5 cm. longis pubescentibus; pedunculis 4–6 axillaribus usque ad 3.5 cm. longis quam folia multo brevioribus hirsutis et glanduloso-pubescentibus; capitulis subglobosis 12–20 mm. diametro, in apice ramorum folioso-paniculatis, bracteis lato-ovatis vel subreniformibus 6–10 mm. longis 5–15 mm. latis acuminatis acutis integris utrinque glanduloso-pubescentibus pallido-viridibus et subchartaceis; calyce circiter 2.5 mm. longo bifido villosissimo et brevi-stipitato-glanduloso; corolla 6 mm. longa obliqua infra glabra suprá pubescente albida.— Guatemala. Department of Amatitlan; Laguna (Lake Amatitlan) altitude 1200 m., 20 January, 1906, *W. A. Kellerman*, no. 6372 (hb. Field Museum, cat. no. 225152, type).

Hereto are referred with some doubt the following Guatemalan specimens: Department of Alta Vera Pax, Cobán, altitude 1400 m., March, 1903, *H. von Tuerckheim*, no. 8441 (exsiccatæ John Donnell Smith); Cobán, altitude 1350 m., February, 1907, *H. von Tuerckheim*, no. II. 715 (hb. Field Museum).

The species here proposed has its affinity with *L. lupulina* Cham., *L. umbellata* Cav., *L. substrigosa* Turcz., and L. *nutans* Rob. & Greenm., but it is amply distinct and easily recognized among all the known species of the genus on account of the large broadly ovate leaf-blade, which is cordate or abruptly contracted at the base, rugose and hirsute-hispid above and sub-tomentose beneath, and glandular hairs intermixed with a spreading hirsute pubescence on stem, petioles and peduncles.

Salvia flaccidifolia Fernald, Proc. Am. Acad. xliii. 66 (1907).

This species is well represented by specimens collected on moist hillsides, Honey, State of Jalisco, Mexico, altitude 2130 m., 21 October, 1908, *Barnes & Land*, no. 496 (hb. Field Museum).

Salvia tiliæfolia Vahl var. cinerascens Fernald, Proc. Am. Acad. xxxv. 495 (1900).

Excellent specimens of this very interesting variety were collected on banks along the Mexican Central Railway below Tuxpan, altitude 990 m., State of Jalisco, Mexico, 9 October, 1908, *Barnes & Land*, no. 321 (hb. Field Museum).

Scutellaria oaxacana Greenman, sp. nov.

Herba ramosa perennis; ramis erectis vel adscendentibus 7–13 cm. altis breviter et dense pubescentibus; foliis petiolatis late ovatis .5–1.5 cm. longis .4–1.4 cm. latis obtusis irregulariter crenato-dentatis vel subintegris supra sparse hirsutis subtus secus nervos pilosis; petiolis 2–3 mm. longis pubescentibus; inflorescentiis racemosis hirsuto-pubescentibus cum pilis glandulosis intermixtis, bracteis brevi-petiolatis vel sessilibus ovato-oblongis obtusis integris; pedicellis 1–2 mm. longis; calyce per anthesem 2–3 mm. longo in fructu usque ad 5 mm. longo pubescente plus minusve purpureo; corollis purpurascentibus circiter 1.5 cm. longis extus pilosis; staminibus anticis longioribus et exsertis; nuculis glabris.— Mexico. State of Oaxaca: Camino Montelobos, Dto. Nochixtlán, Rancho Nopalera, altitude 2000 m., 22 June, 1907, *C. Conzatti*, no. 1849 (hb. Field Museum, cat. no. 226005, type).

The affinity of this species is apparently with *S. cærulea* Moc. & Sesse and *S. Seleriana* Loes. From the former it differs in the low stature, small leaves, shorter and reddish to dark purple flowers and distinctly racemose inflorescence; from *S. Seleriana* it differs in the color of the flowers and in the exserted stamens.

Bacopa decumbens (Fern.) Greenm. Field Col. Mus. Pub. Bot. Ser. ii. 262 (1907).

Specimens collected by *Mr. C. F. Baker* at Herradura, Province of Pinar del Rio, Cuba, 30 September, 1904, correspond well with the original specimens, secured by Dr. Ed. Palmer in the vicinity of Acapulco, Mexico, from which the above species was described. The leaves in Mr. Baker's specimens are slightly broader, but the habit of the plant and detailed characters of the flower are identical.

Seymeria integrifolia Greenm. Proc. Amer. Acad. xxxix. 89 (1903).

A second station for this species may be recorded, as follows.— Mexico. State of Jaliseo: Sierra de San Estaban, altitude 1700 m., 28 September, 1908, *Barnes & Land*, no. 157 (hb. Field Museum).

Anisacanthus tulensis Greenman, sp. nov.

Fruticosus; caulibus teretibus levibus, cortice exfolianti; ramulis ultimis dense subsordido-pubescentibus; foliis brevi-petiolatis anguste lanceolatis 1.5–3 cm. longis 5–10 mm. latis acutis integris basi obtusis supra puberulentis subtus sparse pubescentibus; petiolis 1–4 mm. longis pilosis; floribus axillaribus pedicellatis, pedicellis 2–4 mm. longis dense pilosis; calyce 10–12 mm. longo infra mediam 5-partito extrinsecus plus minusve piloso et granuloso, lobis lanceolato-attenuatis acutis; corolla 5–5.5 cm. longa bilabiata coccinea extus fulvo-pilosa, tubo circiter 2 cm. longo superne paullum ampliato, labio postice lineari-elongato circiter 3 cm. longo ad apicem minute 2-lobo, labio antice 3-partito cum lobis lineari-elongatis 2.5 cm. longis obtusis; stylo glabro; disco breviter cupuliformi; capsula ovata 2–2.5 cm. longa glabra, basi in stipitem latam longe contracta maturitate segmenta calycis æquanti; seminibus suborbiculatis compressis plerumque 6 mm. longis 5 mm. latis minute muricatis.— Mexico. State of Oaxaca: Santa Maria del Tule, altitude 1600 m., 31 March, 1907, *C. Conzatti*, no. 1773 (hb. Field Museum, cat. no. 225939).

A species most nearly related to *A. pumilum* Nees and *A. Greggii* (Torr.) Gray, but readily separated by the densely pubescent branchlets and longer calyx.

Ruellia Palmeri Greenman, sp. nov.

Frutex .75–2.5 m. altus; ramis teretibus vel obtuse tetragonis dense atomifero-glandulosis et plus minusve hirsuto-pubescentibus ad nodos compressis; foliis subcoriaceis petiolatis ovatis vel ovato-oblongis 5–15 cm. longis 1.5–7.5 cm. latis acutis vel acuminatis integris basi subrotundatis vel breviter cuneatis supra puberulentis atamifero-glandulosisque glabratis subtus pallidioribus subglabris vel cano-tomentulosis, venis primariis transversis conspicuis; petiolis 1–2.5 cm. longis plus minusve pubescentibus; floribus axillaribus brevipedicellatis ad apicem ramulorum dispositis; pedicellis 4–18 mm. longis; calycibus 2–2.5 cm. longis 5-partitis, segmentis lanceolatis subacutis extus dense puberulentis glandulosisque intus plus minusve sericeo-canescentibus; corollis 7–8.5 cm. longis ad basin cylindrico-tubulosis infra medium incurvis vel subito ventricoso-inflatis, limbi lobis subæquantibus oblongo-ovatis circiter 2 cm. longis 1.5 cm. latis apice obtusis vel rotundatis ciliatis; staminibus exsertis, filamentis glabris; ovario dense piloso et glanduloso, loculis 4-ovulatis, stylo subhirsuto. Capsulam maturam non vidi.— Mexico. State of Guerrero: vicinity of Acapulco, October, 1894, to March, 1895, *Dr. Edward Palmer*, no. 382 (hb. Field Museum, cat. nos. 36949, 265631, type). State of Oaxaca: Teojomulco, Distrito de

Inguila, altitude 2000 m., 31 December, 1908, *C. Conzatti,* no. 2351 (hb. Field Museum).

The species here proposed belongs to the same group as *Ruellia Bourgœii* Hemsl. and *R. pulcherrima* T. Anders. From the former it differs in the outline, size, pubescence and texture of the leaves, smaller flowers, more lanceolate calyx-divisions, pubescent ovary and fewer ovules; from *R. pulcherrima* it differs in having larger leaves, shorter calyx, the absence of stipitate glands, and in the more conspicuously ventricose and larger corolla.

Coutarea acamptoclada Rob. & Millsp. Engl. Bot. Jahrb. xxxvi. Beibl. lxxx, 28 (1905).

This species was described originally from flowering specimens (*Seler,* no. 4044) with quite undeveloped leaves, hence the following characters pertaining to foliage and fruit may be here recorded, as follows: Folia petiolata elliptica vel oblongo-obovata 2–3.5 cm. longa 1–1.7 cm. lata ad apicem sæpissime rotundata et cuspidata rarius emarginata integerrima basi cuneata utrinque glabra subtus palidiore; petiolis 1 cm. vel minus longis; capsulis pedicellatis oblongo-ovoideis 1.5–2 cm. longis circiter 1 cm. latis muriculatis; seminibus numerosis alatis.— Mexico. State of Yucatan: Port Silam (Tzilam), *Dr. G. F. Gaumer,* coll. of 1895, no. 682 (hb. Field Museum).

Adenostemma nutans Greenman, sp. nov.

Herba glabra 1 m. alta; caule striato-angulato; foliis oppositis, superioribus sessilibus ovatis acuminatis obtusis minute serrato-dentatis 3-nerviis; inflorescentiis terminalibus corymboso-cymosis; capitulis numerosis homogamis plerumque nutantibus 8–10 mm. altis; squamis involucri 2-seriatis lineari-oblongis vel spathulatis 4–6 mm. longis glabris obtusis vel rotundatis integerrimis, exterioribus brevioribus; floribus numerosis; pappi setis plerumque 2 (1–3) papillo-clavatis perbrevibus vel multoreductis; corollis ca. 4 mm. longis flavo-viridibus 5-dentatis extus sparsissime subglanduloso-hirtis; achæniis obliquis 2.5–3 mm. longis 5-costatis inter costis tuberculoso-glandulosis.— Mexico. State of Vera Cruz: in marshy land near the City of Vera Cruz, 13 April, 1910, *C. R. Orcutt,* no. 3410 (hb. Field Museum, cat. no. 280116).

But for the presence of a reduced pappus the plant here described might be referred equally well to *Gymnocoronis,* and habitally it resembles *G. subcordata* DC., but differs in involucral and achenial characters. In most cases, however, the pappus is present in the form of one to three papillose-clavate much reduced setæ, hence its affinity seems rather to be with *Adenostemma.*

Eupatorium crassirameum Rob. Proc. Am. Acad. xxxv. 332 (1900).

This very interesting and unique species has been collected at the following stations.— Mexico. State of Oaxaca: Estacion de Almoloyas, altitude 800 m., 3 March, 1907, *C. Conzatti*, no. 1753 (hb. Field Museum). Salvador. Above Izalco, altitude 800 m., 25 February, 1907, *H. Pittier*, no. 1978 (hb. U. S. Nat. Museum, and hb. Field Museum).

Xanthocephalum linearifolium (DC.) Greenman, comb. nov. *X. Alamani* Benth. & Hook. f. Gen. Pl. ii. 249 (1876); Hemsl. Biol. Cent.– Am. Bot. ii. 109 (1881). *Gutierrezia Alamani* Gray Pl. Wr. i. 91 (1852). *Keerlia linearifolia* DC. Prodr. v. 310 (1836).

Melampodium villicaule Greenman, sp. nov.

Herba annua erecta 2.5–3 dm. alta; caule ramoso dense villoso-pubescenti; foliis oppositis petiolatis vel superioribus subsessilibus ovatis vel ovato-oblongis 2–6 cm. longis 1–3.5 cm. latis acutis vel obtusis et submucronatis integris basi abrupte cuneatis 3-nervatis atroviridibus utrinque sparse plus minusve adpresso-tuberculato-hirsutis; petiolo 1 cm. vel minus longo; pedunculis filiformibus 2–8 cm. longis pubescentibus; capitulis 7–10 mm. diametro; involucri squamis exterioribus 5 ovatis 4–5 mm. longis acutis subadpresso-villosis herbaceis; flosculis liguliferis plerumque 5, ligulis late ovatis circiter 5 mm. longis flavis; fructu (achænio squama involucri interiore amplexo) a latere compresso et tuberculato apice in cornu longissimum circinato-revolutum glabrum vel nonnihil sericeum producto.— Collected in Mexico, by *C. R. Orcutt*, no. 4386 (hb. Field Museum, cat. no. 282534).

This species is most nearly related to *Melampodium longipilum* Rob. but differs in having a less branched stem, broader leaves which are abruptly contracted below the middle to a petiolate base, longer peduncles, and fewer heads.

Sanvitaliopsis Liebmannii Schz. Bip. Leopoldina xxiii. 89 (1887); Greenm. Proc. Am. Acad. xli. 261 (1905).

So far as known to the writer no collection of this apparently rare species has been made since it was discovered in the early forties by Liebmann along the Rio Taba in southern Mexico. Excellent specimens were obtained by Professor *C. Conzatti* on the Cerro San Antonio de la Cal, altitude 1600 m., State of Oaxaca, Mexico, 18 August, 1907, no. 1952 (hb. Field Museum), which were taken to represent the above species and accordingly were sent to the Gray Herbarium for comparison with authentic material. Professor

B. L. Robinson has very kindly compared for me the Conzatti plant with a part of the original Liebmann material now at the Gray Herbarium and states there is no doubt that they are conspecific. Hence a second locality may be definitely recorded for this interesting composite shrub.

Sclerocarpus multifidus Greenman, sp. nov.

Herba annua (?); caule erecto vel ascendente; ramis ramulisque striatis strigosisque; foliis alternis petiolatis vel summis sessilibus ambitu ovatis vel oblongo-ovatis 5–8 cm. longis 1–4 cm. latis pinnato-multifidis utrinque adpresso-pubescentibus subtus pallidioribus, lobis lineari-lanceolatis acutis integris vel irregulariter dentatis; inflorescentiis terminalibus; capitulis longe pedunculatis, pedunculis 4–16 cm. longis nudis plus minusve adpresso-pubescentibus; bracteis involucri foliaceis lanceolatis 7–12 mm. longis acutis hirsutis persistentibus; corollis florum radii flavis, tubo gracili 2.5–3 mm. longo, radiis oblongo-ovatis bidentatis supra minuto-papillosis subtus parce strigosis; paleis receptaculi achænia maturata arte involventibus 4–5 mm. longis tuberculatis et parce hirsutis; achæniis obliquo-obovatis circiter 4 mm. longis striatulis glabris.— Mexico. State of Guerrero: Rio Balsas, 26 August, 1910, *C. R. Orcutt*, no. 4177 (hb. Field Museum, cat. no. 282101, type). The character of the leaves renders this a unique and very easily recognized species.

Sclerocarpus Orcuttii Greenman, sp. nov.

Herba annua (?); caule erecto ramoso purpurascenti; ramis ramulisque striatis parce substrigosis; foliis alternis petiolatis ovatis 2–3.5 cm. longis 1–2 cm. latis acutis vel obtusis subintegris trinerviis utrinque strigoso-hispidis basi cuneatis subtus pallidioribus; petiolis usque ad 1.5 cm. longis; pedunculis 1–6 cm. longis subadpresso-hispidis; capitulis radiatis; bracteis exterioribus involucri foliaceis obovatis 5–6 mm. longis 3–5 mm. latis submucronatis strigoso-hispidis; radiis ovato-oblongis juventate aurantio-flavis; paleis florum disci achænia maturata amplectentibus parce tuberculatis hirsutisque; achæniis obliquis 2.5–3 mm. longis epapposis glabris.— Mexico. State of Colima: Colima, 24 October, 1910, *C. R. Orcutt*, no. 4599 (hb. Field Museum, cat. no. 283411, type).

Sclerocarpus uniserialis (Hook.) Benth. & Hook. f., var. **papposus** Greenman, var. nov.

Caulis dense strigoso-pubescens; foliis inferioribus longe petiolatis subtus incano-strigosis; achæniis oblongo-obovatis glabris, pappo coronato-lacinato 2.5 mm. longo.— Mexico. State of Guerrero: Rio Balsas, 26 August, 1910, *C. R. Orcutt*, no. 4208 (hb. Field Museum,

cat. no. 282121). Similar to the species but with a closely appressed-pubescent stem, minute outer involucral bracts and a well developed pappus.

Isocarpha blepharolepis Greenman, sp. nov.

Herba perennis tota subvilloso-tomentosa; ramis ramulisque teretibus; foliis infra oppositis supra alternis brevipetiolatis vel sessilibus oblongo-lanceolatis 1–3.5 cm. longis 3–12 mm. latis acutis integris vel denticulatis utrinque pubescentibus; capitulis ad apicem ramulorum dispositis conferto-cymosis multifloris ovato-oblongis 5–8 mm. longis; squamis involucri biseriatis oblongo-lanceolatis 2–3 mm. longis acutis ciliatis et extrinsecus pubescentibus; receptaculo elongato, paleis spathulato-cuneatis obtusis uninerviis conspicue ciliatis dorso pubescentibus plus minusve viridibus vel purpurascentibus, margine membranaceis; corollis tubulosis ad faucem ampliatis albis vel purpurascentibus, tubo extus sparsissime glanduloso-hirtello; achaeniis calvis circiter 1.5 mm. longis 5-angulatis glabris.—Peru: Somate, altitude 100 m., 18 November, 1910, *C. H. T. Townsend*, no. 825 (no. 534396 hb. U. S. Nat. Museum), type; fragment and photograph in hb. Field Museum.

This species at first suggests the common *Isocarpha oppositifolia* R. Br. from which it is readily distinguished by the alternate upper leaves and by the thin one-nerved blunt and strongly ciliated pales of the receptacle.

Gymnolomia guatemalensis Greenman, comb. nov. *G. patens* var. *guatemalensis* Rob. & Greenm., Proc. Bost. Soc. Nat. Hist. xxix. 94 (1899). *G. microcephala*, var. *guatemalensis* Rob. & Greenm., Proc. Am. Acad. xxxix. 101 (1903).

This species was originally characterized as a variety of *G. patens* Gray with the following brief description,— "With copious spreading pubescence on the stem: pedicels 1–2.5 cm. long: pappus none." Several specimens have since been examined and all possess the copious spreading pubescence on stem, leaves, and in the inflorescence, thus rendering it easily separated from *G. microcephala* Less. with which it has been associated as a variety. Hereto are referred the following,— Guatemala: San Miguel Uspantán, Department of Quiché, altitude 1825–3650 m., April, 1892, *Heyde & Lux*, no. 3370 of John Donnell Smith's sets; Cobán, Department of Alta Verapaz, altitude 1300 m., February, 1903, *H. von Tuerckheim*, no. 8423 of John Donnell Smith's sets; Sierra de las Minas, Department of Verapaz, 3 March, 1907, *W. A. Kellerman*, no. 6284 (hb. Field Museum); near Jalapa, Department of Jalapa, altitude 1360 m., 7 January, 1908, *W. A. Kellerman*, no. 7984 (hb. Field Museum); Cobán, Department of Alta Verapaz, altitude,

1350 m., February, 1907, *H. von Tuerckheim*, no. II. 1602, and March, 1907, no. II, 927 in part (hb. Field Museum).

Perymenium strigillosum Greenman, comb. nov. *P. grande* Hemsl., var. *strigillosum* Rob. & Greenm. Proc. Am. Acad. xxxiv. 529 (1899); Jones l. c. xli. 166 (1905). *Zexmenia fasciculata* Coulter in J. D. Smith's Enum. Pl. Guat. iv. 86 (1895), not Gray.

Fruticosum; caule subtetragono 4-sulcato strigilloso; foliis oppositis petiolatis ovato-lanceolatis 0.5–2 dm. longis 1–6.5 cm. latis acuminatis acutis crenato-serratis basi cuneatis integris utrinque hispidis supra basin 3-nerviis; petiolis usque ad 4 cm. longis et pedunculis adpresse pilosis; inflorescentiis paniculato-cymosis terminalibus; capitulis numerosis radiatis; involucri campanulati ca. 6 mm. alti squamis 2–3-seriatis inæqualibus ovatis vel ovato-oblongis 3–6 mm. longis apice obtusis vel subrotundatis plus minusve ciliatis extrinsecus strigillosis; ligulis conspicuis flavis elliptico-oblongis ca. 1.5 cm. longis 5 mm. latis; pappi setis valde inæqualibus numerosis; achaeniis maturatis 3–4 mm. longis parce pubescentibus, radii triquetris 3-alatis, disci latero-compressis et plus minusve 2-alatis, alis sursum productis pappo liberis.— Guatemala: Department of Santa Rosa, Cenaguilla, altitude 1200 m., November, 1892, *Heyde & Lux*, no. 4244, exiccatæ John Donnell Smith (hb. Field Museum cat. nos. 264839, 264840); Department of Sacatipéquez, Volcano Agua, altitude 2130–2285 m., 15 February, 1905, and 4 February, 1908, *W. A. Kellerman*, nos. 5326, 7425 (hb. Field Museum, cat. nos. 195454, 224429). Department of Talapa, Volcano Imay, altitude 1500 m., 8 January, 1908, *W. A. Kellerman*, no. 7040 (hb. Field Museum, cat. no. 224250). San Salvador: Amatepeque Hill, near San Salvador, altitude 1200 m., 2 February, 1907, *H. Pittier*, no. 1906 (hb. U.S. Nat. Museum, cat. no. 578308, fragments in hb. Field Museum).

A re-examination of the material referred to *Perymenium grande* Hemsl. by Robinson and Greenman in their revision of this genus shows that the variety *strigillosum* may be clearly differentiated from Mr. Hemsley's species by the appressed or strigillose pubesence on stem, branches, inflorescence and petioles, by the uniformly shorter and narrower involucral bracts, and by the thicker leaves. It seems therefore best to regard this plant as a species rather than a variety, hence it is here raised to specific rank and a description appended.

Zexmenia elegans Schz. Bip., var. **Kellermanii** Greenman, var. nov.

A forma typica recedit foliis subtus pedunculisque strigoso-pubescentibus.— Guatemala. Department of Izabal: Las Amates, 15 February, 1908, and 17 January, 1905, *W. A. Kellerman*, nos. 7612, 5332 (hb. Field Museum).

Tagetes jaliscensis Greenm. Proc. Am. Acad. xl. 47 (1904).

Specimens well exemplifying this species were collected on hillsides along the road to San Domingo mine, altitude 1580 m., near Etzatlan, State of Jalisco, Mexico, 6 October, 1908, *Barnes & Land*, no. 287 (hb. Field Museum).

Liabum adenotrichum Greenman, sp. nov.

Frutex 3–4 m. altus; caulibus juvenilibus floccoso-tomentosis glabratis striatisque; foliis oppositis vel ternatis petiolatis trinervatis ovatis 6–13 cm. longis 2–7.5 cm. latis acuminatis calloso-denticulatis ad basin abrupte contractis cuneatis et petiolam decurrentibus supra arachnoideo-tomentulosis glabratisque subtus densissime albo-lanatis petiolis 2.5–3 cm. longis subglabratis; inflorescentiis paniculatis terminalibus albo-tomentosis et pilis stipitato-glandulosis intermixtis; capitulis discoideis circiter 20-floris; involucri squamis 4–5-seriatis acutis vel obtusis exterioribus triangulari-ovatis acutis circiter 3 mm. longis striatis externe sparsissime tomentosis et pilis stipitato-glandulosis intermixtis, squamis interioribus gradatim majoribus lanceolatis vel lanceolato-oblongis acutis vel obtusis 3–10 mm. longis; corollis 11–12 mm. longis flavidulis sparsissime pilosis; achæniis circiter 2 mm. longis hirsuto-pubescentibus et stipitato-glandulosis; pappi setis 2-seriatis.— Mexico. State of Oaxaca: Cerro de Frujano, Distrito del Centro, altitude 1700 m., 15 November, 1908, *C. Conzatti*, no. 2316 (hb. Field Museum, cat. nos. 239615, 246875).

In general appearance *L. adenotrichum* resembles *L. glabrum* Hemsl., var. *hypoleucum* Greenm., but differs in the more pointed involucral bracts, the presence of stipitate-glandular hairs in the inflorescence, and pubescent achenes.

Senecio (§Suffruticosi) alvarezensis Greenman, sp. nov.

Herbaceus perennis ubique floccoso-tomentosus; caule erecto ramoso striato plus minusve lignoso; foliis in partibus caulinis superioribus laternis sessilibus irregulariter laciniato-lobatis vel subpinnatis 3–8 cm. longis 1–4.5 cm. latis supra arachnoideo-tomentulosis subtus dense et persistenter albo-lanatis basi subamplexicaulibus, laciniis irregulariter sinuato-denticulatis margine revolutis; inflorescentiis subcorymboso-cymosis multicapitatis; capitulis radiatis ca. 1 cm. altis heterogamis; involucris campanulatis calyculatis tomentulosis, bracteolis calyculatis lineari-attenuatis conspicuis; involucri squamis plerumque 21 lanceolato-linearis 7–8 mm. longis acuminatis acutis nigro-penicillatis; floribus feminibus ligulatis 10–12, ligulis flavis; floribus disci ca. 50 numero squamis involucri paullo longioribus; pappi setis albis; achæniis maturatis

2.5 mm. longis cano-hirtellis.— Mexico. State of San Luis Potosi; Alvarez, 28 September to 3 October, 1902, *Dr. Edward Palmer*, no. 177 (hb. Gray and hb. Field Museum).

Senecio (§Terminales) Orcuttii Greenman, sp. nov.

Arborescens 2–3 m. altus; foliis petiolatis oblongo-ovatis usque ad 6 dm. longis 3–3.5 dm. latis profunde pinnato-partitis, lobis oblongo-lanceolatis 4–18 cm. longis 1.5–4.5 cm. latis acuminatis acutis remote apiculato-dentatis ciliatis supra atro-viridibus subtus pallidioribus utrinque parce pubescentibus vel glabris; inflorescentiis terminalibus corymboso-cymosis glabris vel sparsissime pubescentibus; capitulis numerosis 12–15 mm. altis heterogamis minute calyculatis; involucris subcylindratis vel anguste campanulatis, squamis 8 lineari-lanceolatis 12–13 mm. longis acutis vel obtusis glabris; floribus femineis ligulatis, tubo ca. 7 mm. longo, ligulis flavis 1 cm. longis 3–4 mm. latis; floribus disci 12–15, corollis sursum gradatim ampliatim 5-dentatis; pappi setis albis caducissime; achæniis striato-costatis ca. 4 mm. longis glabris.— Mexico. State of Vera Cruz: Omealca, near Cordova, on limestone cliffs, 6 April, 1910, *C. R. Orcutt*, no. 3150 (hb. Field Museum, cat. nos. 279188–90).

The writer has at hand but a leaf and a part of an inflorescence yet the plant belongs evidently to the section *Terminales* Greenm. and is allied to *S. arborescens* Seem. and *S. copeyensis* Greenm. From both these species, however, *S. Orcuttii* is distinguished readily by the deeply pinnately parted almost compound leaf and large heads.

Picris echioides L. Sp. Pl. 792 (1753).

Good specimens of this species were collected at Cherubusco, Distrito Federal, Mexico, 4 October, 1910, *C. R. Orcutt*, no. 4283 (hb. Field Museum, cat. no. 282479). The plant is well established at this station, but the species seems not to have been reported hitherto from Mexico.

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1526	9¾ "	7⅝ "	"
1527	10½ "	7⅞ "	"
1528	11 "	8 "	"
1529	12 inches	10 inches	½ inch
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